

From: [Eberhardt, Maja](#)
To: [Candon Tanaka](#)
Cc: [Kissinger, Lon](#)
Subject: RE: Inputs for HHC calculator
Date: Friday, August 16, 2019 2:46:00 PM
Attachments: [Selenium HHC calcs.xlsx](#)

Hi Candon,

You had mentioned that the Idaho Se criteria, based on an FCR of 66.5 g/day, are lower than the criteria from the EPA calculator when using 175 g/day. I dug into that today, and it looks like the EPA calculator used a higher RSC (relative source contribution) than Idaho, which pushed the criteria up above Idaho's. Attached is the spreadsheet I made to sort this out; Lon has checked it. It includes a live formula that you can use to generate Se criteria based on the inputs you have selected for your HHC. I've entered the values that I think you are using, including a RSC of 0.2, and came up with criteria of 25 and 95 ug/L for water+orgs and orgs only - that looks more like what one would expect relative to Idaho's criteria. The criteria for water+orgs are not too different because Idaho and the EPA calculator both use the DWI of 2.4 L/day, but the criteria for consumption of organisms only are proportional to the two FCRs.

Did I get the inputs right? You could also use an RSC of 0.5 if you have included consumption of salmon or marine fish species in the FCR, as EPA had used for Washington's HHC. This was done to avoid accounting for consumption of salmon in both the FCR and the RSC.

I'll also be taking a look at other criteria where the RSC may not have been updated to the 2015 recommendations in the EPA calculator, so I have a better understanding how the EPA calculator works, and also so we can update RSCs if that is preferred. The EPA fact sheet for the 2015 criteria (<https://www.epa.gov/sites/production/files/2015-10/documents/human-health-2015-update-factsheet.pdf>) indicates that the following criteria were not updated; these are the ones I'll look at:

"Due to outstanding technical issues, EPA did not update human health criteria for the following chemical pollutants at this time: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III or VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, N-nitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin)."

I'll let you know what I come up with, but if these criteria are included in the WA spreadsheet, you could use that to check the EPA calculator values, and adjust the RSC if you prefer.

Thanks.

Maja

From: Eberhardt, Maja
Sent: Wednesday, August 14, 2019 11:58 AM
To: Candon Tanaka <ctanaka@sbtribes.com>
Cc: Kissinger, Lon <Kissinger.Lon@epa.gov>
Subject: Inputs for HHC calculator

Hi Candon,

Well, not straight-forward, but hopefully helpful. The attached *2015 HHC Calculator.xlsx* includes criteria for chemicals that were updated in 2015. We also have the criteria table for Washington, which includes criteria that were not updated in 2015, including selenium, that EPA had promulgated in Washington. I can't guarantee that these two tables comprise the full list (some

criteria that were not promulgated in WA and were not updated in 2015 may not be included), but I hope it helps. Please note that the relative source contribution (RSC) was increased in Washington relative to EPA's 304(a) recommendation for many criteria to compensate for fish species included in the FCR. A higher RSC would result in a higher criterion. Here's EPA's criteria webpage again in case that's helpful <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>. From this you can find your way to tables of inputs for the HHC:

2015 HHC inputs: https://www.epa.gov/sites/production/files/2016-03/documents/summary_of_inputs_final_revised_3.24.16.pdf

(also see <https://www.epa.gov/wqc/2015-epa-updated-ambient-water-quality-criteria-protection-human-health>, which has a link to a 2002/2015 HHC comparison table)

2002 HHC inputs: <https://www.epa.gov/sites/production/files/2018-12/documents/hh-criteria-calculation-matrix-2002.pdf>

Talk to you tomorrow.

Maja